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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/830,507	06/15/2001	Chai-Jing Chou	44407	8190
22515	7590	12/23/2003	EXAMINER YOON, TAE H	
THE DOW CHEMICAL COMPANY INTELLECTUAL PROPERTY SECTION 2301 N BRAZOSPORT BLVD FREEPORT, TX 77541-3257			ART UNIT 1714	PAPER NUMBER

DATE MAILED: 12/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 20031106

Application Number: 09/830,507

Filing Date: June 15, 2001

Appellant(s): CHOU ET AL.

Nemia C. Damocles  
For Appellant

MAILED  
DEC 20 2003  
GROUP 1700

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed on October 9, 2003.

A statement identifying the real party in interest is contained in the brief.

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

The statement of the status of the claims contained in the brief is correct.

This appeal involves claims 1-19.

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

The amendment after final rejection filed on June 13, 2003 and October 2, 2003 has not been entered.

The summary of invention contained in the brief is correct.

The appellant's statement of the issues in the brief is correct.

Appellant's brief includes a statement that all claims stand or fall together.

The copy of the appealed claims contained in the Appendix to the brief is correct.

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

6,287,992	POLANSKY et al.	9-2001
5,747,560	CHRISTIANI et al.	5-1998
4,810,734	KAWASUMI et al.	3-1989
4,558,075	SUSS et al.	12-1985
WO 93/04117	MAXFIELD et al.	3-1993

The following ground(s) of rejection are applicable to the appealed claims:

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 3, 4, 7, 8 and 14 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims recite a determination of the weight percent of the single layer and multiple layers of silicate material by transmission electron microscopy (TEM). The examiner agrees with appellant's general statement that said TEM is a well known microscopy. However, there is no teaching in the specification with respect to a particular measurement. A sliced TEM sample would contain silicate material (long axis or short axis) perpendicular and parallel to the light source, and thus, it would not be a simple measurement. For example, it would look like a single layer when flat surfaces

of multiple layers of silicate material are situated perpendicular to the light source.

Appellant failed to describe adequately how to measure the recited weight percent.

Note that appellant's amendment after final filed on October 9, 2003 contains cancellation of claims 3, 4, 7 and 8, but it has not been entered due to other issue.

Also, the added paragraph to the specification (filed on April 14, 2003) regarding TEM measurement based on US 6,287,992 which was not disclosed at the time of the invention constitutes NEW MATTER since the amendment after final filed on June 13, 2003 in order to remove said paragraph has not been entered.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 93/04117 or Christiani et al (US 5,747,560) in view of Suss et al (US 4,558,075).**

WO and Christiani et al are equivalent since the priority data of WO show US application number 798,489 (US 5,747,560), and thus the examiner points out WO.

WO teaches a melt-blending of thermoplastics or vulcanizable rubbers or blends thereof with intercalated layered silicates in abstract, pages 6, 10-12, 27-31 and

examples. Said layered silicates comprise 1 layer (page 31, lines 10-15) meeting the instant limitation of the weight ratio. Said layered silicates are modified with quaternary ammonium compounds.

The instant invention further recites a polyvalent anionic organic material modification. Suss et al teach layered silicates modified with an organic cation-organic anion complex at col. 9, lines 48-65, col. 11, lines 64-68 and col. 12, lines 7-22 and 49-66. Suss et al equate mono- and poly-valent anioinc compounds, and acrylic acid polymers and copolymers taught at col. 11, lines 64-68 meet the instant polyacryate of claims 14, 15 and 19 (the page 2 of the instant specification discloses that said polyacryate includes an acrylic acid copolymer). At least some of anionic groups of polyacrylic acid would inherently located at the edge. Said layered silicates yields a good storage ability (col. 1, lines 51-58) due to a good miscibility of said layered silicates modified with an organic cation-organic anion complex and a binder.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to utilize layered silicates modified with an organic cation-organic polyvalent anion complex of Suss et al as fillers in a melt-blending of WO since WO teaches a melt-blending of thermoplastics with intercalated layered silicates and since the advantage (good storage ability) of polyacrylic acid or polyacryate treated quaternary ammonium intercalated layered silicates in polymeric systems is well known as taught by Suss et al and since Suss et al equate mono- and poly-valent anioinc compounds..

Contrary to appellant's assertion that Suss does not teach polyvalent anionic organic material, Suss et al teach the use of polymeric acids at col. 11, lines 64-68, and appellant's failed to show any unexpected result.

Suss et al provide a motivation to use an organic cation-(polyvalent) anion complex which yields a good storage ability (col. 1, lines 51-58) due to a good miscibility of said layered silicates modified with an organic cation-organic (polyvalent) anion complex and a polymer.

With respect to appellant's assertion regarding the recited limitation of claim 1, the edges of the multi-layered silicate material are bound to the polyvalent anionic organic material to form a polyvalent anionic organic edge coated quaternary ammonium intercalated multi-layered silicate material, the examiner points to page 2 of the instant specification wherein a simple stirring of components is disclosed. Suss et al teach the same method at col. 12, lines 31-48. Thus, the recited property is an inherent property of an organic cation-(polyvalent) anion complex of Suss et al. The reaction of cations and polyvalent anions of the instant invention is an ionic and the physical ionic interaction between cations and anions is known as the complex.

**Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasumi et al (US 4,810,734) or Polansky et al (US 6,287,992) in view of Suss et al (US 4,558,075).**

Kawasumi et al teach a process for producing composite material by polymerization of monomers in the presence of onium ion modified layered silicates at col. 3, line 20 to col. 4, line 32 in examples. Said onium ion has a carboxyl group (col. 3, line 35).

Polansky et al teach a process for producing composite material by polymerization of monomers in the presence of modified layered silicates in examples. Surface modification of layered silicates with a compound having a functional group such as amino or carboxy is taught at col. 7, lines 37-48.

The instant invention further recites an organic cation- polyvalent anionic material modification. Suss et al teach layered silicates modified with an organic cation-organic polyvalent anion complex as discussed above.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to utilize layered silicates modified with an organic cation-organic polyvalent anion complex of Suss et al as fillers in polymerization of Kawasumi et al or Polansky et al since Kawasumi et al and Polansky et al teach polymerization of monomers in the presence of onium ion modified layered silicates and since the advantage (good storage ability) of polyacrylic acid treated quaternary ammonium intercalated layered silicates in polymeric systems is well known as taught by Suss et al and since Kawasumi et al and Polansky et al teach an anionic group such as carboxyl on layered silicates and since Suss et al equate mono- and poly-valent anionic compounds.

Suss et al have been discussed above. Also, Polansky et al teach poly(acrylic acid) and their salts at col. 8, line 14. Thus, the utilization of Suss et al would be an obvious practice to one skilled in the art.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,  
*Tae H Yoon*  
Tae H Yoon  
Primary Examiner  
Art Unit 1714

THY/  
November 6, 2003

Conferees

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